SANTA CLARA VALLEY WATER DISTRICT

SAN TOMAS AQUINO/SARATOGA CREEK PLANNING STUDY

SUMMARY REPORT

By

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Predesign Division

JANUARY 1981

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1981

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WATER DISTRICT
5750 Almaden Expressway
San Jose, California 95118

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INTRODUCTION

This report covers the flooding and erosion problems of San Tomas Aquino and Saratoga Creeks. The limits of the study are San Tomas Aquino Creek from Williams Road to the Bayshore Freeway and Saratoga Creek from Lawrence Expressway to the confluence with San Tomas Aquino Creek.

A review and updating of previous studies is presented as well as the impact of a flood control benefit assessment. In a letter of October 11, 1979, the Mayor of the City of Santa Clara asked that the Water District investigate the feasibility of using an assessment district as a method to finance the Saratoga and San Tomas Aquino Creek improvements (see Appendix C for this letter).

The study shows which portions of the overall project have the greatest economic value, how much of the overall project may be constructed with and without additional revenues, which alternatives should be chosen for the individual projects, and at what time in the future construction will be possible.

BACKGROUND AND PROJECT STATUS

This report summarizes the results and current status of three planning studies:

1. Saratoga Creek Planning Study - San Tomas Aquino Creek to Lawrence Expressway, June 1979 by M. J. Gomez.
2. San Tomas Aquino Creek - from 680 feet upstream of the confluence with Saratoga Creek to Bayshore Freeway, February 1980 by M. J. Gomez.
3. San Tomas Aquino Creek Preliminary Review Report - Williams Road to the Saratoga Creek confluence, October 1980 by K. W. Whitman.

The Saratoga Creek Planning Study of June 1979 addressed the flooding, erosion, and sedimentation problems of Saratoga Creek between Lawrence Expressway and the San Tomas confluence. The study recommended that the project be broken down into several stages for implementation due to funding limitations. These stages are as follows:

Stage 1 - Construction of Saratoga Creek from Cabrillo Avenue to the San Tomas confluence.

Stage 2 - Construction of San Tomas Aquino Creek from 680 feet upstream of the confluence to Bayshore Freeway, i.e., lower San Tomas project.

Stage 3 - Construction of Saratoga Creek from Lawrence Expressway to Central Park.

Stage 4 - The remaining portion of Saratoga Creek improvements.

Construction of Stage 1 of the project is complete at this time. Stage 2, San Tomas Creek from 680 feet upstream of the confluence with Saratoga Creek to Bayshore Freeway was the subject of the February, 1980 Planning Study and is now under design by District staff. Construction is expected to begin on this project in Spring of 1981.

Stage 3 constitutes the major portion of the Saratoga Creek project not yet completed.

Stage 4 was to be implemented as money from the North Central Zone or from other sources became available. No consideration was given to the upper portion of San Tomas Aquino Creek as no information was available at that time.

The October 1980 Preliminary Review Report on upper San Tomas Aquino Creek provided a detailed definition of the flooding problems of the San Tomas Aquino Creek box culvert system. The recommendation was that no project be constructed to eliminate the flooding problem of the box culvert system due to excessively high costs and low benefits.

EXISTING FLOOD PROBLEM

The Saratoga/San Tomas flood problems must be considered both jointly and individually because the flooding problem of the subject area is complicated by a region of common floodplain north of Homestead Road in the City of Santa Clara.

I. Existing Total Floodplain of Saratoga and San Tomas Aquino Creeks -

Saratoga and San Tomas Creeks are both inadequate to convey the one percent design flow rates. The result is an average frequency of flooding of once every 10 years on Saratoga Creek and once every 25 years on upper San Tomas Creek. The floodplains of these creeks join near Homestead Road in the City of Santa Clara to form a common floodplain, shown in Figure 1.

Damages from the 100-year flood would be $42.5 million with an average annual damage of $760,000. The present worth of the average annual damages, plus existing average annual maintenance is $9.6 million.

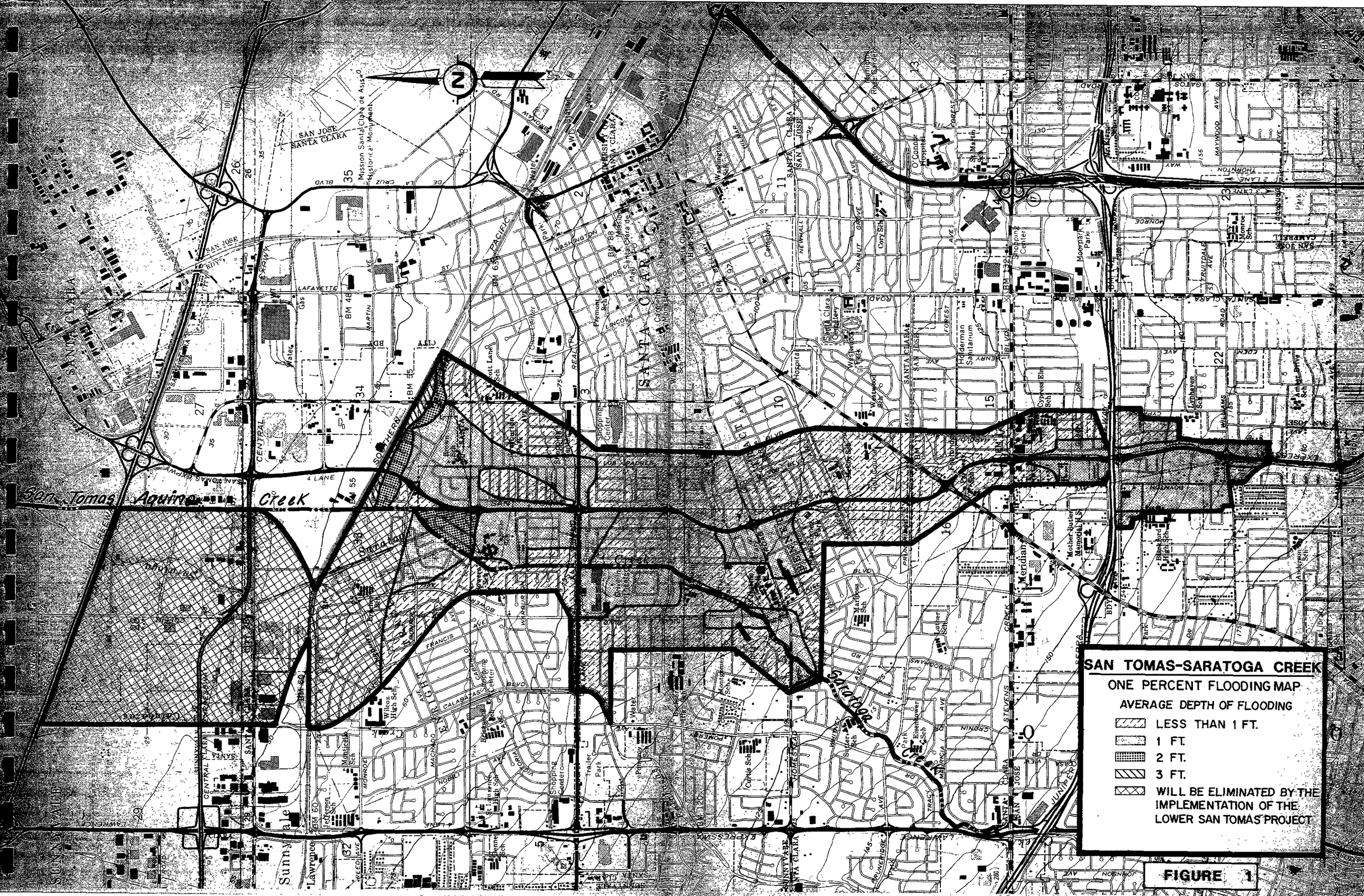
II. The Upper San Tomas Floodplain -

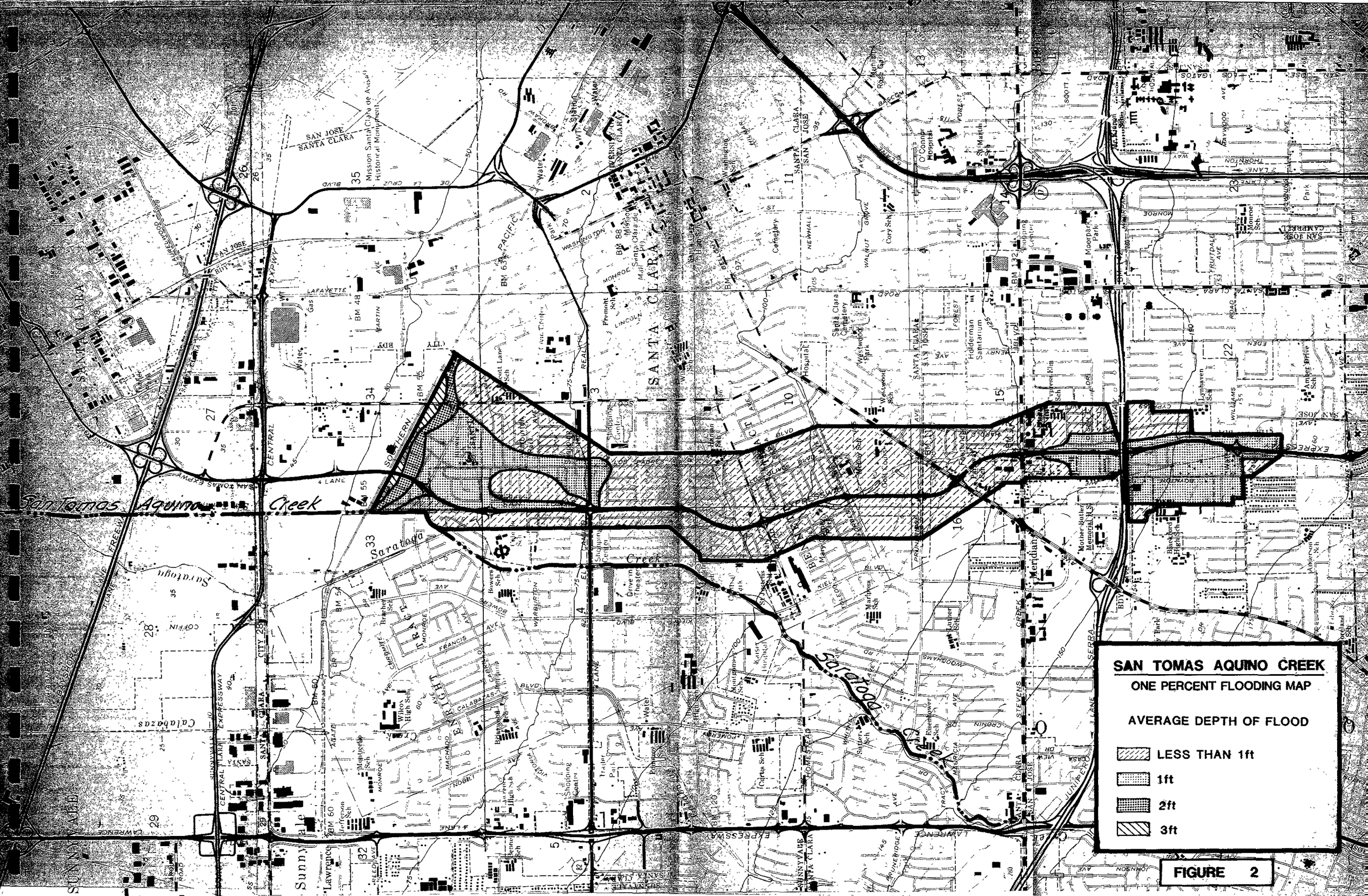
The upper San Tomas Creek was the subject of the October 1980 Preliminary Review Report. Figure 2 depicts the approximate limits of the upper San Tomas floodplain if all improvements are made to the lower San Tomas Creek and the reach of Saratoga Creek from Lawrence Expressway to the confluence with San Tomas Creek.

Damages from the 100-year flood would be $15.0 million with an average annual damage of $200,000. The present worth of the average annual damages is $2.4 million. The total area subject to flooding is 970 acres.

III. The Saratoga Creek Floodplain -

Saratoga Creek Floodplain, from San Tomas Creek to Lawrence Expressway, was discussed in the Saratoga Creek Planning Study report of June 1979. The residual floodplain of Saratoga Creek after completion of the Lower San Tomas Project and all of the upper San Tomas project is shown in Figure 3.


SAN TOMAS-SARATOGA CREEK
ONE PERCENT FLOODING MAP
AVERAGE DEPTH OF FLOODING
LESS THAN 1 FT.
1 FT.
2 FT.
3 FT.
WILL BE ELIMINATED BY THE IMPLEMENTATION OF THE LOWER SAN TOMAS PROJECT
San Tomas Aquino Creek
Saratoga Creek
SANTA CLARA
SAN JOSE
SUNNYVALE
Mission Santa Clara de Asis
Historical Monument
Santa Clara University
Holderman Sanitarium
O'Connor Hospital
Santa Clara Cemetery
Moonpark Park
Mother Butler Memorial H.S.
Meridian
Lawrence
Sunnyvale
Shopping Center
Trailer Park
Wilcox High Sch
Curtis Sch
Eisenhower Sch
Lincoln Sch
Washington Sch
Lincoln Sch
Cypress Elm Sch
Lyndhaven Sch
Monroe Sch
Jefferson Sch
Montgomery Sch
Martinez Sch
Lincoln Sch
Bellarmine Prep
Pioneer High Sch
Bishop Sorg High Sch
Ahlgren Sch
Washington Sch
Fremont Sch
Scott Lane Sch
Cupertino Sch
Lawrence Sch
Kennedy Sch
Sunnyvale Sch
Lakewood Sch
Cupertino Sch
Hospital
Water
Gas
Park
Cemetery
Golf Course
Shopping Center
Trailer Park
Pioneer High Sch
Wilcox High Sch
Curtis Sch
Eisenhower Sch
Sutter Sch
Martinez Sch
Lincoln


SAN TOMAS AQUINO CREEK
ONE PERCENT FLOODING MAP
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LESS THAN 1ft
1ft
2ft
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San Tomas Aquino Creek
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SAN JOSE
SUNNYVALE
Mission Santa Clara de Asis Historical Monument
Santa Clara Cemetery
Santa Clara Mall
Holderman Sanitarium
Moonpark Park
Westwood Park
Lynhaven Sch
Amber Drive Sch
Mother Butler Memorial H.S.
Blackford High Sch
Anderson Sch
Drive-in Theater
Shopping Center
Trailer Park
Wilson High Sch
Lawrence
Sunnyvale
Saratoga
Calabazas
Merdian
Stevens Creek
Lawrence Expressway
Central Expressway
Southern Pacific
Bayshore Freeway
Junipero Serra Freeway
Monroe
Stevens Creek Blvd
Pruneridge Ave
Homestead Rd
Hamilton Ave
Fremont Sch
Washington Sch
Cory Sch
Monroe Sch
Cypress Elm Sch
Lincoln Sch
Scott Lane Sch
Bowers Sch
Bracher Sch
Montgomery Sch
Kaiser Hospital
Martinez Sch
Luther Sch
Eisenhower Sch
Sutter Sch
Fourtes Sch
Pomeroy Sch
Jefferson Sch
Dennis Sch
Lawrence Sch
Wilson High Sch
Shopping Center
Drive-in Theater
Trailer Park
Pomeroy Park
Fourtes Park
Lawrence Park
Sunnyvale Park
Hospital
Cemetery
Water
Gas
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Rose Gar
O'Connor Hospital
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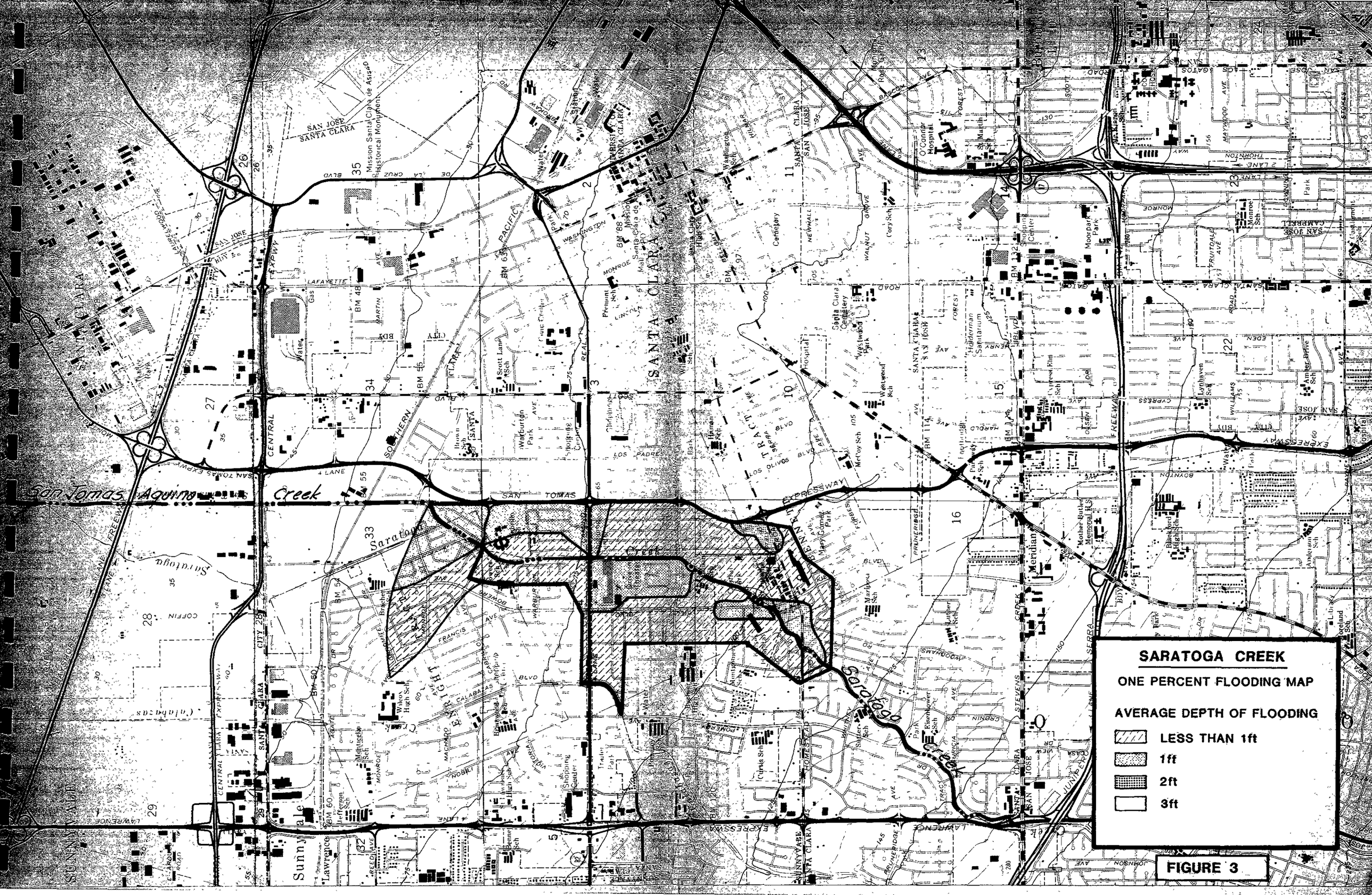
Jackson Sch
Park
Monroe Sch
Moonpark Park
Holderman Sanitarium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ONE PERCENT FLOODING MAP
AVERAGE DEPTH OF FLOODING
LESS THAN 1ft
1ft
2ft
3ft
San Tomas Aquino Creek
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SANTA CLARA
SAN JOSE
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Meridian
CENTRAL EXPWY
SOUTHERN PACIFIC
SAN TOMAS EXPRESSWAY
LAWRENCE EXPRESSWAY
FREEWAY
Mission Santa Clara de Asis
Historical Monument
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Lynhaven Sch
Amber Drive Sch
Anderson Sch
Lofland Sch
Eisenhower Sch
Mary Gomez Park
Warburton Park
Westwood Park
Scott Lane Sch
Jefferson Sch
Lincoln Sch
Monroe Sch
Hacienda Park
Shopping Center
Trailer Park
Water
Gas
Hospital
Cemetery
Park
Library
Fire Sta
Post Office
Sta
Sch
Hwy
Rd
Ave
Blvd
Dr
Ln
Pl
Way
Cir
Ct
Creek
Bridge
Dam
Levee
Pump Station
Gate
Culvert
Weir
Channel
Flood Control
Drainage
Storm Drain
Sewer
Manhole
Catch Basin
Inlet
Outlet
Junction
Confluence
Tributary
Branch
Fork
Bend
Curve
Straight
Reach
Segment
Section
Station
Mile
Km
Elevation
Contour
Spot Elevation
Benchmark
Survey
Datum
Reference
Control
Point
Line
Area
Boundary
Limit
Extent
Coverage
Map
Chart
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Page
Text
Caption
Legend
Key
Scale
Grid
Coordinate
Latitude
Longitude
Projection
Transverse Mercator
Zone
Meridian
Parallel
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Reference
Control
Point
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Area
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Limit
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Chart
Table
Figure
Page
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Caption
Legend
Key
Scale
Grid
Coordinate
Latitude
Longitude
Projection
Transverse Mercator
Zone
Meridian
Parallel

FIGURE 3

Damages from the 100-year flood would be $13.2 million with an average annual damage of $360,000. The present worth of the annual flood insurance premiums ($238,125/yr.), annual maintenance ($40,000/yr.), and residual damages ($108,000/yr.) at an 8% discount rate over a period of fifty years is $4.7 million.

ALTERNATIVE PLANS CONSIDERED

Several alternatives to the upper San Tomas and Saratoga Creek flood problems have been evaluated.

A description of the alternatives considered follows.

1. No Project.

If no projects were constructed to solve the upper San Tomas or Saratoga Creek flood damage potential, the conditions described in the Existing Flood Problem chapter would continue. This assumes no change in the existing conditions of the floodplain. This means no increase or decrease in the value of the property in the floodplain, no new developments susceptible to flood damages, no changes in the capacity of the channels and no changes in the hydrologic characteristics of the watersheds.

If only lower San Tomas Creek from the confluence to the Bayshore Freeway is constructed, the area removed from the floodplain will be that which is shown in Figure 1 as being eliminated.

There would then be approximately 1,237 homes in the Saratoga Creek floodplain and 1,100 homes in the upper San Tomas Creek floodplain which would be required to purchase Federal Flood Insurance if they were sold or refinanced. The amount of coverage required by law is equal to the amount financed, not to exceed maximum of $70,000. The structures in the floodplains are subject to shallow sheet flooding. The insurance rates for these areas will be $.25 per $100 of coverage for the first $35,000 ($87.50 per year) and $.30 per $100 of coverage for the second $35,000 ($105 per year) for a total of $192.50 per year per home. The total annual cost for flood insurance is $238,125 per year for the Saratoga floodplain and $211,750 per year for the upper San Tomas floodplain. The total annual cost of flood insurance premiums for both floodplains would be $449,875 per year. The present worth of these annual insurance premiums is $2.9 million for the Saratoga floodplain and $2.5 million for the upper San Tomas floodplain.

The flood insurance rates quoted above include only coverage of the structure. If coverage of contents is desired, additional fees are required.

It is important to realize that the flood insurance program only mitigates the financial impact of a flood disaster. The potential for flood damage remains unchanged. There are significant costs associated with a flood emergency which are not covered by the mandatory flood insurance program including costs of flood emergency operations; indirect damages such as business loss; damage to structure contents; damage to public facilities such as roads, bridges and parks; damage to personal valuables such as bills, records and certificates; damage to swimming pools, landscaping and crops. These residual damages are estimated to be about 30% of the average annual damages or about $108,000 per year for the Saratoga Creek floodplain shown in Figure 3.

2. Parallel Box Culvert on Upper San Tomas Creek.

In the October 1980 Preliminary Review Report, one alternative which would solve the upper San Tomas flood problem is a parallel box culvert under San Tomas Expressway.

The concept behind this project is to convey the excess flow which the existing box culvert cannot handle. The additional box culvert would thus eliminate the major spill at Williams Road and also allow local inflows to enter the system downstream.

The estimated cost to construct the parallel box culvert on upper San Tomas Creek is $28 million. The present worth of the average annual benefits of the project would be about $2.4 million. The damages and project costs are summarized in Table 2.

3. Concrete Channel on Saratoga Creek.

In the June 1979 Saratoga Creek Planning Study, a concrete-lined channel was one of the alternatives investigated for Saratoga Creek. The estimated cost

in June 1979 was $4.8 million and the estimated cost, as of January 1981, is $5.2 million. The total first cost, including $25,000 per year in annual maintenance, is $5.5 million. The impact of inflation upon future maintenance costs was not considered.

The concrete channel project proposes a trapezoidal section with a 15-foot bottom width, one to one side slopes and an average depth of ten feet. Approximately 11,000 feet of channel would be lined from Cabrillo Avenue to just upstream of Pruneridge Avenue. Central Park would remain an earth channel for about 1,800 feet below Kiely Boulevard. A trail with access under bridges would provide a continuous paved pathway between Bowers Park and Maywood Park.

A sediment basin would be located upstream of Pruneridge Avenue where District right of way is 140 feet. The purpose of the basin is to deposit the coarse bed-load materials transported by the Creek to avoid severe abrasion of the concrete such as has already occurred at the Pruneridge Avenue bridge and the trapezoidal channel between I-280 and Stevens Creek Boulevard.

The channel would be sufficiently narrow (35 feet top width) to allow some recreational and environmental mitigation in the remaining earth portion of the right of way.

4. Earth and Gabion Channel on Saratoga Creek.

The proposed project of the June 1979 Planning Study was an earth and gabion channel. The estimated cost was $6.0 million in 1979. Using the January 1981 unit costs and including the present worth of annual maintenance the total first cost is $8.3 million.

The project proposed in the June 1979 Planning Study has been modified to improve the hydraulic performance and decrease the total first cost including maintenance, to about $7.7 million.

The typical channel section is a 30-foot bottom width with one to one side slopes, twelve feet deep, with 18-inch mat gabions on the sides and an earth bottom. The depressed maintenance road in previous proposals has been eliminated. Five drop structures will be required to maintain the velocities within an acceptable range. Central Park will remain an earth channel.

Table 1 presents a summary of the Saratoga Creek alternatives. The damages and project costs are summarized in Table 2.

The only upper San Tomas project which will completely solve the flood problem without inducing additional problems is a parallel box culvert under San Tomas Expressway. The only project to solve the Saratoga Creek problems which is also acceptable to the community and the City of Santa Clara is the earth and gabion channel project.

TABLE 1

SUMMARY OF THE SARATOGA CREEK ALTERNATIVES

No.	Alternative	Cost	Description
1.	No Project	$4,700,000	Allows flooding to continue as it has in the past. The cost represents the present worth of the average annual flood insurance premiums plus annual maintenance costs and residual flood damages.
2.	Concrete Channel	$5,500,000	A trapezoidal concrete channel will be constructed to carry the 100 year flood on Saratoga Creek. There will be an environmental impact.
3.	Earth -Gabion Channel	$7,700,000	A combination of earth and gabion channels will be constructed to carry the 100 year flood of Saratoga Creek. The environmental impact will initially be similar to the concrete channel. However, the gabions allow for the re-establishment of riparian habitat.

TABLE 2

DAMAGE AND COST SUMMARY FOR THE SARATOGA/SAN TOMAS FLOODPLAIN

	Damages			Costs		
Creek	1% Damages	Average Annual Damages	Present Worth of Average Annual Damages[1]	Construction Cost	Annual Maintenance Cost	Total Project Cost[2]
Upper San Tomas	$15 million	$200,000	$2.4 million	$28 million[3]	$2,000	$28 million
Saratoga	$13.2 million	$360,000	$4.4 million	$7.2 million[4]	$40,000	$7.7 million
Lower San Tomas	$14.3 million	$200,000	$2.4 million	$2.3 million[5]	$10,000	$2.4 million
Total	$42.5 million	$760,000	$9.2 million	$37.5 million	$52,000	$38.1 million

1. Based upon an 8% discount rate over a period of 50 years.
2. Includes the construction cost plus the present worth of annual maintenance at an 8% discount rate over a period of 50 years.
3. Parallel box culvert project.
4. Earth-Gabion channel project.
5. Includes $160,000 for construction of Saratoga Creek from San Tomas Creek to Cabillo Avenue.

CASH FLOW ANALYSIS

To determine when the Saratoga Creek and/or San Tomas Creek projects might be constructed, different cash flow analyses were performed. An investment rate of 10% and an inflation rate for construction costs of 15% were used in all cases.

The first cash flow analysis assumed that only current tax revenues were available and these amounts were escalated 10% per year. The results of this cash flow analysis show that, with only the existing revenues, neither the concrete channel project or the gabion channel project could even begin a significant amount of construction by FY 89-90.

The second cash flow analysis assumed that the proposed AB 549 benefit assessment with the uniform $12 rate was implemented starting in FY 81-82 with an additional annual revenue of $1.01 million for the North Central Zone. This amount was increased annually by 10%. The additional revenues would allow the concrete channel project to begin construction in FY 81-82 and be completed in FY 87-88 while the earth and gabion channel project could begin construction in FY 81-82 and be completed in FY 89-90. None of the upper San Tomas project could be started by FY 89-90 in either case (see Table 3).

Without AB 549 or a similar funding source, the Saratoga Creek project has very little chance of even being started by 1990 while, with AB549 the entire Saratoga Creek project could be completed by 1990.

TABLE 3

SARATOGA CREEK CONSTRUCTION SCHEDULING[1/]

	1980-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
I. Without AB549										
1. Concrete project							$.27	—	—	—
2. Gabion project							$.27	—	—	—
II. With AB549										
1. Concrete project		$.14	$.98	$1.64	$1.80	$1.97	$2.17	$.85		
2. Gabion Project		$.14	$.98	$1.64	$1.79	$1.97	$2.17	$2.33	$2.60	$2.11

1/ Annual expenditures are in millions of dollars. Scheduling is based upon a 15% annual inflation rate for construction and a 10% annual investment rate on capital.

POSITION OF THE COMMUNITY AND THE CITY

The City of Santa Clara and the community have indicated in the letter of October 11, 1979 and during the November 9, 1976 Board meeting (see Appendix C) a desire to have a flood control project constructed.

In the October 11, 1979 letter to the District Board of Directors, the Mayor of Santa Clara requested that the District investigate the feasibility of using an assessment district as a means to finance the needed improvements on upper San Tomas Aquino and Saratoga Creeks.

There has been strong indication from the Saratoga Creek Citizens Advisory Committee and local citizens that the earth and gabion channel is preferred over the concrete channel for the Saratoga Creek Project.

In the agenda memorandums of August 10, 1976 and November 9, 1976, reference was specifically made to the community's unfavorable opinion of the concrete-lined channel project (see Appendix C).

CONCLUSIONS

There is a definite flood problem in San Tomas and Saratoga Creeks. The potential damage, as a result of the 100-year flood, is about $42.5 million. After construction of the lower San Tomas Creek project, the 100-year flood damage potential will be reduced to about $28 million. This still represents a significant problem.

In the June 1979 Planning Study, a project was proposed for Saratoga Creek which would provide protection from the 100-year flood. The project consisted of an earth and gabion channel which would prevent flooding, control erosion, and minimize the environmental impact of a flood control project. In January 1981 the gabion project was modified by applying certain cost saving revisions and simplifications. The estimated cost of the modified gabion project is $7.7 million including maintenance.

The City of Santa Clara and the Saratoga Creek Citizens Advisory Committee have expressed the desire for flood protection. They have indicated that a concrete-lined channel would be unacceptable.

Due to the reduction in revenues as a result of the passage of Proposition 13, no significant amount of the project could be constructed on Saratoga Creek and none of upper San Tomas project could be constructed within the next ten years. If AB 549 (flood control benefit assessment) is implemented in FY 81-82, construction of the earth-gabion project on Saratoga Creek could begin in FY 81-82 and end in FY 89-90. None of the upper San Tomas project could be started by FY 89-90.

RECOMMENDATIONS

1. That no project be constructed to eliminate flooding due to upper San Tomas Creek until all other problems are solved in the North Central Flood Control Zone.

2. That pending passage of AB 549 or a similar source of funding, the modified earth-gabion channel project proposed for Saratoga Creek be designed and constructed.

APPENDIX A

COST AND DAMAGE BREAKDOWN

1. EXISTING TOTAL FLOODPLAIN OF SARATOGA AND SAN TOMAS AQUINO CREEKS. 100-YEAR FLOOD DAMAGES: $42.5 MILLION

source as quoted below:

A. Upper San Tomas Aquino Creek: $15.0 million,

source - July 1980 Preliminary Review Report

B. Lower San Tomas Aquino Creek: $14.3 million

source - November 1978 Planning Study quoted $12 million. This amount was updated using a real estate inflation rate of 20%.

C. Saratoga Creek: $13.2 million

source - November 1978 Planning Study quoted $11 million. This amount was updated using a real estate inflation rate of 20%.

Average annual damages: $760,000 per year

source as quoted below:

A. Upper San Tomas Aquino Creek: $200,000 per year

B. Lower San Tomas Aquino Creek: $200,000 per year

C. Saratoga Creek: $360,000 per year

Total area subject to flooding: 2,430 acres

source as quoted below:

A. Upper San Tomas Aquino Creek: 970 acres

B. Lower San Tomas Aquino Creek: 775 acres

C. Saratoga Creek: 685 acres

(These figures are derived from the FIA 1% flooding maps.)

Costs of Entire Projects

A. Trapezoidal concrete channel project on Saratoga Creek, parallel box culvert on upper San Tomas Aquino Creek, and Lower San Tomas Project as proposed in the February 1980 Engineer's Report.

Total first cost of projects: $35.9 million

1. Upper San Tomas Aquino Creek: $28.0 million
2. Lower San Tomas Aquino Creek: $2.4 million[1/]
3. Saratoga Creek: $5.5 million

B. Earth and gabion channel project on Saratoga Creek, parallel box culvert on upper San Tomas Aquino Creek, and Lower San Tomas Project as proposed in the February 1980 Engineer's Report.

Total first cost of projects: $38.1 million

1. Upper San Tomas Aquino Creek: $28 million
2. Lower San Tomas Aquino Creek: $2.4 million[1/]
3. Saratoga Creek: $7.7 million

[1/] Includes $160,000 for construction of Stage 1, Saratoga Creek from San Tomas Creek to Cabrillo Avenue.

2. UPPER SAN TOMAS FLOODPLAIN WILLIAMS ROAD TO CONFLUENCE.

100-YEAR FLOOD DAMAGES: $15 MILLION

source - July 1980 Preliminary Review Report. Includes the floodplain shown in Figure 2. Refer to report for itemized damage breakdown.

Average annual damages: $200,000 per year.

source - July 1980 Preliminary Review Report. Estimated by using 1% damage of $15 million and channel capacity of 4% flood in conjunction with the classical flood damage curve analysis.

Total area subject to flooding: 970 acres.

source - July 1980 Preliminary Review Report.

Total first cost of parallel box culvert: $28 million

source - July 1980 Preliminary Review Report.

3. SARATOGA CREEK FLOODPLAIN. 100 YEAR FLOOD DAMAGES: $13.2 MILLION

source - June 1979 Planning Study indicated $11 million damages. This value was escalated 20% to account for the increase in property values.

Average annual damages: $360,000 per year

source - Estimated by using 1% damage of $13.2 million and channel capacity of 10% flood in conjunction with the classical flood damage curve analysis. Capacity of 10% flood quoted from June 1979 Planning Study.

Total area subject to flooding: 685 acres

source - June 1979 Planning Study

Total first cost of trapezoidal concrete channel project: $5.5 million

source - January 1981 cost estimate including maintenance.

Total first cost of earth and gabion channel project: $7.7 million

source - January 1981 cost estimate for modified gabion project proposed in the June 1979 Planning Study.

APENDIX B-1

CONCRETE CHANNEL PROJECT ON SARATOGA CREEK

WITH CURRENT REVENUE SOURCES

CASH FLOW ANALYSIS

TEN YEAR PLANNING SCHEDULE
NORTH CENTRAL ZONE (CURRENT REVENUES ONLY)

1/14/81

PLANNING = 10 PROJECTS/YEAR DESIGN = 10 PROJECTS/YEAR INFLATION RATE = .1500 /YEAR INVESTMENT RATE = .1000/YEAR

COST FUNCTION (PROJECT-REACH)	PRIORITY NUMBER	PROJECT COST IN 80-81	SCHEDULE YEAR (ALL COSTS ARE IN 1000S OF DOLLARS) 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL PROJECT COST
INCOME INCOME INCOME													
MISC REVENUES - FEES,AB549 ET			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
LOCAL TAX REVENUES			1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.	
OTHER MISC REVENUES- MINOR			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
TOTAL ANNUAL REVENUES			1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.	
PRIOR RESERVES PLUS INTEREST			349.	578.	609.	669.	736.	806.	885.	971.	1065.	1168.	
SOME FUNDS CARRIED OVER FROM PRIOR YEARS			2838.	0.	10.	-0.	144.	264.	-0.	-0.	-0.	-0.	
EXPENSES-EXPENSES-EXPENSES													
ADMINISTRATION COSTS	0		189.	200.	220.	242.	266.	292.	322.	354.	389.	429.	2903.
NORMAL MAINTENANCE	0		459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.	7926.
MAJOR FACILITY APPROPRIATION	0		475.	499.	548.	604.	663.	730.	803.	883.	972.	1118.	7294.
CONTINGENCY APPROPRIATION	0		50.	55.	60.	65.	70.	75.	80.	85.	90.	95.	725.
ORDINANCE CONSTRUCTION	0		27.	0.	0.	0.	0.	0.	0.	0.	0.	0.	27.
CALABAZAS CR R/W ACQUITN RAINBOW CR TOWNHOMES	0		23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.
SAN TOMAS EROSION REPAIR BAYSHORE-AGNEW	0		294.	0.	0.	0.	0.	0.	0.	0.	0.	0.	294.

	COST IN 80-81	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
SAN TOMAS CR CONST SARATOGA CR-BAYSHORE	0	2522.	478.	0.	0.	0.	0.	0.	0.	0.	0.	3000.
SARATOGA CR CONST CARRILLO-SAN TOMAS	0	30.	0.	0.	0.	0.	0.	0.	0.	0.	0.	30.
WILDCAT CR R/W ACQUITN WILDCAT CR#DOUGLAS	0	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.
ENGRG SERVICES CONST	0	71.	0.	0.	0.	0.	0.	0.	0.	0.	0.	71.
MISC FUTURE CONST	0	0.	30.	33.	36.	40.	44.	48.	53.	58.	64.	406.
PROJECTS IN PLANNING												
SF BAY STUDY	0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
WATERWAYS PLAN STUDY	0	14.	14.	0.	0.	0.	0.	0.	0.	0.	0.	14.
CALABAZAS CR CITY OF SARATOGA	0	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	40.
CALABAZAS CR INTERIM/REMEDIAL WORK	0	27.	27.	0.	0.	0.	0.	0.	0.	0.	0.	27.
SAN TOMAS CR WILLIAMS-SARATOGA	0	49.	49.	0.	0.	0.	0.	0.	0.	0.	0.	49.
SARATOGA CR LAWRENCE-CARRILLO	0	9.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
ENGRG SERVICES PLANNING	0	7.	7.	0.	0.	0.	0.	0.	0.	0.	0.	7.
FUTURE PLANNING	0	897.	0.	0.	173.	190.	209.	229.	252.	277.	306.	336.	1971.
NEW PROJECTS--O&C												
MT EDEN EROSION	0	75.	0.	0.	99.	0.	0.	0.	0.	0.	0.	0.	99.

NORTH CENTRAL ZONE (CURRENT REVENUES ONLY)

CASH FLOW SUMMARY

	SCHEDULE YEAR									
	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
BEGINNING CASH BALANCE	2838.	525.	581.	628.	837.	1014.	850.	1197.	1908.	2750.
MISC REVENUES - FEES,AR549 ET	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LOCAL TAX REVENUES	1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.
INTEREST INCOME	349.	53.	58.	63.	84.	101.	85.	120.	191.	275.
OTHER MISC REVENUES- MINOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL REVENUES	4294.	1848.	2036.	2228.	2611.	2974.	2980.	3566.	4574.	5747.
ADMINISTRATION COSTS	189.	200.	220.	242.	266.	292.	322.	354.	389.	429.
PLANNING	148.	0.	173.	190.	209.	229.	252.	277.	306.	336.
CONSTRUCTION	2973.	517.	410.	295.	390.	798.	323.	53.	58.	64.
NORMAL MAINTENANCE	459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.
MAJOR FACILITY APPROPRIATION	475.	499.	548.	604.	663.	730.	803.	883.	972.	1118.
CONTINGENCY APPROPRIATION	50.	55.	60.	65.	70.	75.	80.	85.	90.	95.
SUB TOTAL	4294.	1821.	2016.	2060.	2330.	2929.	2666.	2626.	2886.	3220.
CONSTRUCTION UNENCUMBERED	0.	27.	20.	168.	281.	45.	314.	940.	1688.	2527.
TOTAL	4294.	1848.	2036.	2228.	2611.	2974.	2980.	3566.	4574.	5747.

PROJECTS WHICH REMAIN TO BE CONSTRUCTED AFTER 1989-90

CREEK	REACH/STAGE	COST(1000$) 80-81	90-91
SARATOGA CREEK	SN TOMS CR-ST.CRK BLV STAGE B	740.	2994.
SARATOGA CREEK	SN TOMS CR-ST.CRK BLV STAGE C	1075.	4349.
SARATOGA CREEK	SN TOMS CR-ST.CRK BLV STAGE D	1025.	4147.
SARATOGA CREEK	SN TOMS CR-ST.CRK BLV STAGE E	980.	3965.
SARATOGA CREEK	SN TOMS CR-ST.CRK BLV STAGE F	940.	3803.
SARATOGA CREEK	SN TOMS CR-ST.CRK BLV STAGE G	321.	1299.
SAN TOMAS CREEK	DISTRICT SHARE HWY 237	770.	3115.
CALABAZAS CREEK	DISTRICT SHARE HWY 237	770.	3115.
CALABAZAS CREEK	LAWRENCE EXPWY-MILLER AVE	640.	2589.
CALABAZAS CREEK	BLANEY- WARDELL STAGE 1	924.	3739.
CALABAZAS CREEK	BLANEY- WARDELL STAGE 2	1665.	6737.
SARATOGA CREEK	PROSPECT AVE- FOURTH ST	138.	560.
SAN TOMAS AQUINO CREEK	POLLARD RD- CANON DR.	254.	1028.
PROSPECT CREEK	CALABAZAS CRK- END	37.	148.
WILDCAT CREEK	FRUITVALE -SARA-LOS GAT RD	173.	700.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 4	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 4	3726.	15075.
GUADALUPE SLOUGH	BAY- CALABAZAS BASIN	20520.	83015.
BAYFRONT LEVEES	LEVEE C	12226.	49461.
BAYFRONT LEVEES	LEVEES D&F	10700.	43287.
BAYFRONT LEVEES	LEVEES E&G	760.	3075.
	TOTAL COST OF ALL PROJECTS IN ZONE	84470.	341727.

		COST IN 80-81	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
SARATOGA CR EROSION CENTRAL PARK	0	8.	0.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
POMEROY BRIDGE	0	210.	0.	0.	278.	0.	0.	0.	0.	0.	0.	0.	278.
BENTON BRIDGE	0	170.	0.	0.	0.	259.	0.	0.	0.	0.	0.	0.	259.
LAWRENCE CULVERT&EROSION	0	375.	0.	0.	0.	0.	0.	754.	0.	0.	0.	0.	754.
MILLER AVE CULVERT	0	200.	0.	0.	0.	0.	350.	0.	0.	0.	0.	0.	350.
SARATOGA CREEK DSGN-CONST SAN TOMAS-LAWRENCE STAGE A	2	119.	0.	0.	0.	0.	0.	0.	275.	0.	0.	0.	275.
FUNDS WHICH ARE SET ASIDE FOR SPECIFIC FUTURE PROJECTS			0.	9.	-0.	131.	240.	-0.	-0.	-0.	-0.	-0.	
BALANCE			0.	18.	0.	15.	0.	0.	265.	595.	654.	670.	

APPENDIX B-2

EARTH AND GABION CHANNEL PROJECT ON SARATOGA CREEK

WITH CURRENT REVENUE SOURCES

CASH FLOW ANALYSIS

TEN YEAR PLANNING SCHEDULE
NORTH CENTRAL ZONE (CURRENT REVENUES ONLY)

1/14/81

PLANNING = 10 PROJECTS/YEAR DESIGN = 10 PROJECTS/YEAR INFLATION RATE = .1500 /YEAR INVESTMENT RATE = .1000/YEAR

COST FUNCTION (PROJECT-REACH)	PRIORITY NUMBER	PROJECT COST IN 80-81	SCHEDULE YEAR (ALL COSTS ARE IN 1000S OF DOLLARS) 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL PROJECT COST
INCOME INCOME INCOME													
MISC REVENUES - FEES,A9549 FT			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
LOCAL TAX REVENUES			1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.	
OTHER MISC REVENUES- MINOR			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
TOTAL ANNUAL REVENUES			1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.	
PRIOR RESERVES PLUS INTEREST			349.	578.	609.	669.	736.	806.	885.	971.	1065.	1168.	
SOME FUNDS CARRIED OVER FROM PRIOR YEARS			2838.	0.	10.	-0.	144.	264.	-0.	-0.	-0.	-0.	
EXPENSES-EXPENSES-EXPENSES													
ADMINISTRATION COSTS	0		189.	200.	220.	242.	266.	292.	322.	354.	389.	429.	2903.
NORMAL MAINTENANCE	0		459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.	7926.
MAJOR FACILITY APPROPRIATION	0		475.	499.	548.	604.	663.	730.	803.	883.	972.	1118.	7294.
CONTINGENCY APPROPRIATION	0		50.	55.	60.	65.	70.	75.	80.	85.	90.	95.	725.
ORDINANCE CONSTRUCTION	0		27.	0.	0.	0.	0.	0.	0.	0.	0.	0.	27.
CALABAZAS CR R/W ACQUITN RAINBOW CR TOWNHOMES	0		23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.
SAN TOMAS EROSION REPAIR BAYSHORE-AGNEW	0		294.	0.	0.	0.	0.	0.	0.	0.	0.	0.	294.

	COST IN 80-81	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
SAN TOMAS CR CONST SARATOGA CR-BAYSHORE	0	2522.	478.	0.	0.	0.	0.	0.	0.	0.	0.	3000.
SARATOGA CR CONST CARRTLLO-SAN TOMAS	0	30.	0.	0.	0.	0.	0.	0.	0.	0.	0.	30.
WILDCAT CR R/W ACQUITN WILDCAT CR-DOUGLAS	0	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.
ENGRG SERVICES CONST	0	71.	0.	0.	0.	0.	0.	0.	0.	0.	0.	71.
MISC FUTURE CONST	0	0.	30.	33.	36.	40.	44.	48.	53.	58.	64.	406.
PROJECTS IN PLANNING												
SF BAY STUDY	0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
WATERWAYS PLAN STUDY	0	14.	14.	0.	0.	0.	0.	0.	0.	0.	0.	14.
CALABAZAS CR CITY OF SARATOGA	0	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	40.
CALABAZAS CR INTERIM/REMEDIAL WORK	0	27.	27.	0.	0.	0.	0.	0.	0.	0.	0.	27.
SAN TOMAS CR WILLIAMS-SARATOGA	0	49.	49.	0.	0.	0.	0.	0.	0.	0.	0.	49.
SARATOGA CR LAWRENCE-CARRILLO	0	9.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
ENGRG SERVICES PLANNING	0	7.	7.	0.	0.	0.	0.	0.	0.	0.	0.	7.
FUTURE PLANNING	0	897.	0.	0.	173.	190.	209.	229.	252.	277.	306.	336.	1971.
NEW PROJECTS--D&C												
MT EDEN EROSION	0	75.	0.	0.	99.	0.	0.	0.	0.	0.	0.	0.	99.

		COST IN 80-81	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
SARATOGA CR FROSTON CENTRAL PARK	0	8.	0.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
POMEROY BRIDGE	0	210.	0.	0.	278.	0.	0.	0.	0.	0.	0.	0.	278.
BENTON BRIDGE	0	170.	0.	0.	0.	259.	0.	0.	0.	0.	0.	0.	259.
LAWRENCE CULVERT&EROSION	0	375.	0.	0.	0.	0.	0.	754.	0.	0.	0.	0.	754.
MILLER AVE CULVERT	0	200.	0.	0.	0.	0.	350.	0.	0.	0.	0.	0.	350.
SARATOGA CREEK DSGN-CONST SAN TOMAS-LAWRENCE STAGE A	2	119.	0.	0.	0.	0.	0.	0.	275.	0.	0.	0.	275.
FUNDS WHICH ARE SET ASIDE FOR SPECIFIC FUTURE PROJECTS			0.	9.	-0.	131.	240.	-0.	-0.	-0.	-0.	-0.	
BALANCE			0.	18.	0.	15.	0.	0.	265.	595.	654.	670.	

PROJECTS WHICH REMAIN TO BE CONSTRUCTED AFTER 1989-90

CREEK	REACH/STAGE	COST(1000$) 80-81	90-91
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE B	740.	2994.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE C	1075.	4349.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE D	1025.	4147.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE E	980.	3965.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE F	940.	3803.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE G	875.	3540.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE H	850.	3439.
SARATOGA CREEK	SN TOMS CR-ST,CRK BLV STAGE I	600.	2427.
SAN TOMAS CREEK	DISTRICT SHARE HWY 237	770.	3115.
CALABAZAS CREEK	DISTRICT SHARE HWY 237	770.	3115.
CALABAZAS CREEK	LAWRENCE EXPWY-MILLER AVE	640.	2589.
CALABAZAS CREEK	BLANEY- WARDELL STAGE 1	924.	3739.
CALABAZAS CREEK	BLANEY- WARDELL STAGE 2	1665.	6737.
SARATOGA CREEK	PROSPECT AVE- FOURTH ST	138.	560.
SAN TOMAS AQUINO CREEK	POLLARD RD- CANON DR.	254.	1028.
PROSPECT CREEK	CALABAZAS CRK- END	37.	148.
BOBCAT CREEK	FRUITVALE -SARA-LOS GAT RD	173.	700.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 4	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS STAGE 4	3726.	15075.
GUADALUPE SLOUGH	BAY- CALABAZAS BASIN	20520.	83015.
BAYFRONT LEVEES	LEVEE C	12226.	49461.
BAYFRONT LEVEES	LEVEES DRE	10700.	43287.
BAYFRONT LEVEES	LEVEES F&G	760.	3075.
	TOTAL COST OF ALL PROJECTS IN ZONE	86474.	349835.

NORTH CENTRAL ZONE (CURRENT REVENUES ONLY)

CASH FLOW SUMMARY

	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
BEGINNING CASH BALANCE	2838.	525.	581.	628.	837.	1014.	850.	1197.	1908.	2750.
MISC REVENUES - FEES,A8549 ET	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LOCAL TAX REVENUES	1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.
INTEREST INCOME	349.	53.	58.	63.	84.	101.	85.	120.	191.	275.
OTHER MISC REVENUES- MINOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL REVENUES	4294.	1848.	2036.	2228.	2611.	2974.	2980.	3566.	4574.	5747.
ADMINISTRATION COSTS	189.	200.	220.	242.	266.	292.	322.	354.	389.	429.
PLANNING	148.	0.	173.	190.	209.	229.	252.	277.	306.	336.
CONSTRUCTION	2973.	517.	410.	295.	390.	798.	323.	53.	58.	64.
NORMAL MAINTENANCE	459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.
MAJOR FACILITY APPROPRIATION	475.	499.	548.	604.	663.	730.	803.	883.	972.	1118.
CONTINGENCY APPROPRIATION	50.	55.	60.	65.	70.	75.	80.	85.	90.	95.
SUB TOTAL	4294.	1821.	2016.	2060.	2330.	2929.	2666.	2626.	2886.	3220.
CONSTRUCTION UNENCUMBERED	0.	27.	20.	168.	281.	45.	314.	940.	1688.	2527.
TOTAL	4294.	1848.	2036.	2228.	2611.	2974.	2980.	3566.	4574.	5747.

APPENDIX B-3

CONCRETE CHANNEL PROJECT ON SARATOGA CREEK

WITH AB 549 IMPLEMENTED

CASH FLOW ANALYSIS

TEN YEAR PLANNING SCHEDULE 1/14/81
NORTH CENTRAL ZONE (AB549 $12 UNIFORM RATE)

PLANNING = 10 PROJECTS/YEAR DESIGN = 10 PROJECTS/YEAR INFLATION RATE = .1500 /YEAR INVESTMENT RATE = .1000/YE

COST FUNCTION (PROJECT-REACH)	PRIORITY NUMBER	PROJECT COST IN 80-81	SCHEDULE YEAR (ALL COSTS ARE IN 1000S OF DOLLARS) 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL PROJECT COST
INCOME INCOME INCOME													
MISC REVENUES - FEES,AB549 E1			0.	1010.	1111.	1222.	1344.	1479.	1627.	1789.	1968.	2165.	
LOCAL TAX REVENUES			1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.	
OTHER MISC REVENUES- MINOR			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
TOTAL ANNUAL REVENUES			1108.	2280.	2508.	2759.	3034.	3338.	3672.	4039.	4443.	4887.	
PRIOR RESERVES PLUS INTEREST			549.	578.	605.	665.	730.	801.	879.	965.	1057.	1161.	
SOME FUNDS CARRIED OVER FROM PRIOR YEARS			2838.	0.	0.	0.	0.	0.	0.	0.	1678.	-0.	
EXPENSES-EXPENSES-EXPENSES													
ADMINISTRATION COSTS	0		189.	200.	220.	242.	266.	292.	322.	354.	389.	429.	2903.
NORMAL MAINTENANCE	0		459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.	7926.
MAJOR FACILITY APPROPRIATION	0		475.	495.	545.	599.	658.	725.	797.	876.	965.	1110.	7243.
CONTINGENCY APPROPRIATION	0		50.	55.	60.	65.	70.	75.	80.	85.	90.	95.	725.
ORDINANCE CONSTRUCTION	0		27.	0.	0.	0.	0.	0.	0.	0.	0.	0.	27.
CALABAZAS CR R/W ACQUITN RAINBOW CR TOWNHOMES	0		23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.
SAN TOMAS EROSION REPAIR BAYSHORE-AGNEW	0		294.	0.	0.	0.	0.	0.	0.	0.	0.	0.	294.

		COST IN 80-81	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
SAN TOMAS CR CONST SARATOGA CR-BAYSHORE	0		2522.	478.	0.	0.	0.	0.	0.	0.	0.	0.	3000.
SARATOGA CR CONST CABRILLO-SAN TOMAS	0		30.	0.	0.	0.	0.	0.	0.	0.	0.	0.	30.
WILDCAT CR R/W ACQUITN WILDCAT CR-DOUGLAS	0		6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.
ENGRG SERVICES CONST	0		71.	0.	0.	0.	0.	0.	0.	0.	0.	0.	71.
MISC FUTURE CONST	0		0.	30.	33.	36.	40.	44.	48.	53.	58.	64.	406.
PROJECTS IN PLANNING													
SF BAY STUDY	0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
WATERWAYS PLAN STUDY	0	14.	14.	0.	0.	0.	0.	0.	0.	0.	0.	0.	14.
CALABAZAS CR CITY OF SARATOGA	0	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	0.	40.
CALABAZAS CR INTERIM/REMEDIAL WORK	0	27.	27.	0.	0.	0.	0.	0.	0.	0.	0.	0.	27.
SAN TOMAS CR WILLIAMS-SARATOGA	0	49.	49.	0.	0.	0.	0.	0.	0.	0.	0.	0.	49.
SARATOGA CR LAWRENCE-CABRILLO	0	9.	9.	0.	0.	0.	0.	0.	0.	0.	0.	0.	9.
ENGRG SERVICES PLANNING	0	7.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.	7.
FUTURE PLANNING	0	989.	0.	150.	165.	182.	199.	219.	241.	266.	292.	322.	2036.
NEW PROJECTS--D&C													
MT EDEN EROSION	0	75.	0.	86.	0.	0.	0.	0.	0.	0.	0.	0.	86.

		COST IN 80-81	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
			SCHEDULE YEAR										
SARATOGA CR EROSION CENTRAL PARK	0	8.	0.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
POMEROY BRIDGE	0	210.	0.	242.	0.	0.	0.	0.	0.	0.	0.	0.	242.
BENTON BRIDGE	0	170.	0.	196.	0.	0.	0.	0.	0.	0.	0.	0.	196.
LAWRENCE CULVERT&EROSION	0	375.	0.	0.	496.	0.	0.	0.	0.	0.	0.	0.	496.
MILLER AVE CULVERT	0	200.	0.	230.	0.	0.	0.	0.	0.	0.	0.	0.	230.
SARATOGA CREEK DSGN-CONST SAN TOMAS-LAWRENCE STAGE A	2	119.	0.	137.	0.	0.	0.	0.	0.	0.	0.	0.	137.
SARATOGA CREEK SN TOMS CR-ST.CRK RLV STAGE B	2	740.	0.	0.	979.	0.	0.	0.	0.	0.	0.	0.	979.
SARATOGA CREEK SN TOMS CR-ST.CRK RLV STAGE C	2	1075.	0.	0.	0.	1635.	0.	0.	0.	0.	0.	0.	1635.
SARATOGA CREEK SN TOMS CR-ST.CRK RLV STAGE D	2	1025.	0.	0.	0.	0.	1793.	0.	0.	0.	0.	0.	1793.
SARATOGA CREEK SN TOMS CR-ST.CRK RLV STAGE E	2	980.	0.	0.	0.	0.	0.	1971.	0.	0.	0.	0.	1971.
SARATOGA CREEK SN TOMS CR-ST.CRK RLV STAGE F	2	940.	0.	0.	0.	0.	0.	0.	2174.	0.	0.	0.	2174.
SARATOGA CREEK SN TOMS CR-ST.CRK RLV STAGE G	2	321.	0.	0.	0.	0.	0.	0.	0.	854.	0.	0.	854.
SAN TOMAS CREEK DISTRICT SHARE HWY 237	0	770.	0.	0.	0.	0.	0.	0.	0.	0.	2355.	0.	2355.
CALABAZAS CREEK DISTRICT SHARE HWY 237	0	770.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2709.	2709.
CALABAZAS CREEK LAWRENCE EXPWY-MILLER AVE	12	640.	0.	0.	0.	0.	0.	0.	0.	0.	1958.	0.	1958.
FUNDS WHICH ARE SET ASIDE FOR SPECIFIC FUTURE PROJECTS			0.	0.	0.	0.	0.	0.	0.	1525.	-0.	-0.	
BALANCE			0.	0.	11.	1.	6.	8.	3.	17.	0.	140.	

PROJECTS WHICH REMAIN TO BE CONSTRUCTED AFTER 1989-90

CREEK	REACH/STAGE		COST(1000$) 80-81	90-91
CALABAZAS CREEK	BLANEY- WARDELL	STAGE 1	924.	3739.
CALABAZAS CREEK	BLANEY- WARDELL	STAGE 2	1665.	6737.
SARATOGA CREEK	PROSPECT AVE- FOURTH ST		138.	560.
SAN TOMAS AQUINO CREEK	POLLARD RD- CANON DR.		254.	1028.
PROSPECT CREEK	CALABAZAS CRK- END		37.	148.
WILDCAT CREEK	FRUITVALE -SARA-LOS GAT RD		173.	700.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 4	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 4	3726.	15075.
GUADALUPE SLOUGH	BAY- CALABAZAS BASIN		20520.	83015.
BAYFRONT LEVEES	LEVEE C		12226.	49461.
BAYFRONT LEVEES	LEVEES D&E		10700.	43287.
BAYFRONT LEVEES	LEVEES F&G		760.	3075.
	TOTAL COST OF ALL PROJECTS IN ZONE		77209.	312353.

APPENDIX B-4

EARTH AND GABION CHANNEL PROJECT ON SARATOGA CREEK

WITH AB 549 IMPLEMENTED

1/14/81

TEN YEAR PLANNING SCHEDULE
NORTH CENTRAL ZONE (AB549 $12 UNIFORM RATE)

PLANNING = 10 PROJECTS/YEAR DESIGN = 10 PROJECTS/YEAR INFLATION RATE = .1500 /YEAR INVESTMENT RATE = .1000/YE

COST FUNCTION (PROJECT-REACH)	PRIORITY NUMBER	PROJECT COST IN 80-81	SCHEDULE YEAR (ALL COSTS ARE IN 1000S OF DOLLARS) 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL PROJECT COST
INCOME INCOME INCOME													
MISC REVENUES - FEES,AB549 ET			0.	1010.	1111.	1222.	1344.	1479.	1627.	1789.	1968.	2165.	
LOCAL TAX REVENUES			1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.	
OTHER MISC REVENUES- MINOR			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
TOTAL ANNUAL REVENUES			1108.	2280.	2508.	2759.	3034.	3338.	3672.	4039.	4443.	4887.	
PRIOR RESERVES PLUS INTEREST			349.	578.	605.	665.	730.	801.	879.	965.	1057.	1161.	
SOME FUNDS CARRIED OVER FROM PRIOR YEARS			2838.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
EXPENSES-EXPENSES-EXPENSES													
ADMINISTRATION COSTS	0		189.	200.	220.	242.	266.	292.	322.	354.	389.	429.	2905.
NORMAL MAINTENANCE	0		459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.	7926.
MAJOR FACILITY APPROPRIATION	0		475.	495.	545.	599.	658.	725.	797.	876.	965.	1110.	7243.
CONTINGENCY APPROPRIATION	0		50.	55.	60.	65.	70.	75.	80.	85.	90.	95.	725.
ORDINANCE CONSTRUCTION	0		27.	0.	0.	0.	0.	0.	0.	0.	0.	0.	27.
CALABAZAS CR R/W ACQUITN RAINBOW CR TOWNHOMES	0		23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.
SAN TOMAS EROSION REPAIR BAYSHORE-AGNEW	0		294.	0.	0.	0.	0.	0.	0.	0.	0.	0.	294.

	COST IN 80-81	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
SAN TOMAS CR CONST SARATOGA CR-BAYSHORE	0	2522.	478.	0.	0.	0.	0.	0.	0.	0.	0.	3000.
SARATOGA CR CONST CABRILLO-SAN TOMAS	0	30.	0.	0.	0.	0.	0.	0.	0.	0.	0.	30.
WILDCAT CR R/W ACQUITN WILDCAT CR-DOUGLAS	0	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.
ENGRG SERVICES CONST	0	71.	0.	0.	0.	0.	0.	0.	0.	0.	0.	71.
MISC FUTURE CONST	0	0.	30.	33.	36.	40.	44.	48.	53.	58.	64.	406.
PROJECTS IN PLANNING												
SF BAY STUDY	0	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
WATERWAYS PLAN STUDY	0	14.	14.	0.	0.	0.	0.	0.	0.	0.	0.	14.
CALABAZAS CR CITY OF SARATOGA	0	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	40.
CALABAZAS CR INTERIM/REMEDIAL WORK	0	27.	27.	0.	0.	0.	0.	0.	0.	0.	0.	27.
SAN TOMAS CR WILLIAMS-SARATOGA	0	49.	49.	0.	0.	0.	0.	0.	0.	0.	0.	49.
SARATOGA CR LAWRENCE-CABRILLO	0	9.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
ENGRG SERVICES PLANNING	0	7.	7.	0.	0.	0.	0.	0.	0.	0.	0.	7.
FUTURE PLANNING	0	989.	0.	150.	165.	182.	199.	219.	241.	266.	292.	322.	2036.
NEW PROJECTS--O&C												
MT EDEN EROSION	0	75.	0.	86.	0.	0.	0.	0.	0.	0.	0.	0.	86.

		COST IN 80-81	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	TOTAL
			SCHEDULE YEAR										
SARATOGA CR EROSION CENTRAL PARK	0	8.	0.	9.	0.	0.	0.	0.	0.	0.	0.	0.	9.
POMEROY BRIDGE	0	210.	0.	242.	0.	0.	0.	0.	0.	0.	0.	0.	242.
BENTON BRIDGE	0	170.	0.	196.	0.	0.	0.	0.	0.	0.	0.	0.	196.
LAWRENCE CULVERT&EROSION	0	375.	0.	0.	496.	0.	0.	0.	0.	0.	0.	0.	496.
MILLER AVE CULVERT	0	200.	0.	230.	0.	0.	0.	0.	0.	0.	0.	0.	230.
SARATOGA CREEK DSGN-CONST SAN TOMAS-LAWRENCE STAGE A	2	119.	0.	137.	0.	0.	0.	0.	0.	0.	0.	0.	137.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE B	2	740.	0.	0.	979.	0.	0.	0.	0.	0.	0.	0.	979.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE C	2	1075.	0.	0.	0.	1635.	0.	0.	0.	0.	0.	0.	1635.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE D	2	1025.	0.	0.	0.	0.	1793.	0.	0.	0.	0.	0.	1793.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE E	2	980.	0.	0.	0.	0.	0.	1971.	0.	0.	0.	0.	1971.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE F	2	940.	0.	0.	0.	0.	0.	0.	2174.	0.	0.	0.	2174.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE G	2	875.	0.	0.	0.	0.	0.	0.	0.	2328.	0.	0.	2328.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE H	2	850.	0.	0.	0.	0.	0.	0.	0.	0.	2600.	0.	2600.
SARATOGA CREEK SN TOMS CR-ST.CRK BLV STAGE I	2	600.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2111.	2111.
FUNDS WHICH ARE SET ASIDE FOR SPECIFIC FUTURE PROJECTS			0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
BALANCE			0.	0.	11.	1.	6.	8.	3.	68.	35.	758.	

NORTH CENTRAL ZONE (AB549 $12 UNIFORM RATE)

CASH FLOW SUMMARY

	SCHEDULE YEAR 80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
BEGINNING CASH BALANCE	2838.	525.	551.	616.	677.	749.	831.	914.	1070.	1210.
MISC REVENUES - FEES,AB549 ET	0.	1010.	1111.	1222.	1344.	1479.	1627.	1789.	1968.	2165.
LOCAL TAX REVENUES	1108.	1270.	1397.	1537.	1690.	1859.	2045.	2250.	2475.	2722.
INTEREST INCOME	349.	53.	55.	62.	68.	75.	83.	91.	107.	121.
OTHER MISC REVENUES- MINOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL REVENUES	4294.	2858.	3114.	3437.	3779.	4162.	4585.	5045.	5621.	6219.
ADMINISTRATION COSTS	189.	200.	220.	242.	266.	292.	322.	354.	389.	429.
PLANNING	148.	150.	165.	182.	199.	219.	241.	266.	292.	322.
CONSTRUCTION	2973.	1407.	1508.	1671.	1833.	2015.	2222.	2381.	2658.	2175.
NORMAL MAINTENANCE	459.	550.	605.	665.	732.	805.	886.	974.	1071.	1179.
MAJOR FACILITY APPROPRIATION	475.	495.	545.	599.	658.	725.	797.	876.	965.	1110.
CONTINGENCY APPROPRIATION	50.	55.	60.	65.	70.	75.	80.	85.	90.	95.
SUB TOTAL	4294.	2857.	3102.	3423.	3758.	4131.	4548.	4936.	5465.	5309.
CONSTRUCTION UNENCUMBERED	0.	1.	12.	13.	21.	31.	37.	109.	155.	909.
TOTAL	4294.	2858.	3114.	3437.	3779.	4162.	4585.	5045.	5621.	6219.

PROJECTS WHICH REMAIN TO BE CONSTRUCTED AFTER 1989-90

CREEK	REACH/STAGE		COST(1000$) 80-81	90-91
SAN TOMAS CREEK	DISTRICT SHARE HWY 237		770.	3115.
CALABAZAS CREEK	DISTRICT SHARE HWY 237		770.	3115.
CALABAZAS CREEK	LAWRENCE EXPWY-MILLER AVE		640.	2589.
CALABAZAS CREEK	BLANEY- WARDELL	STAGE 1	924.	3739.
CALABAZAS CREEK	BLANEY- WARDELL	STAGE 2	1665.	6737.
SARATOGA CREEK	PROSPECT AVE- FOURTH ST		138.	560.
SAN TOMAS AQUINO CREEK	POLLARD RD- CANON DR.		254.	1028.
PROSPECT CREEK	CALABAZAS CRK- END		37.	148.
WILDCAT CREEK	FRUITVALE -SARA-LOS GAT RD		173.	700.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 1	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 2	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 3	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 4	3726.	15075.
SAN TOMAS AQUINO CREEK	CABRILLO-WILLIAMS	STAGE 4	3726.	15075.
GUADALUPE SLOUGH	BAY- CALABAZAS BASIN		20520.	83015.
BAYFRONT LEVEES	LEVEE C		12226.	49461.
BAYFRONT LEVEES	LEVEES D&E		10700.	43287.
BAYFRONT LEVEES	LEVEES F&G		760.	3075.
	TOTAL COST OF ALL PROJECTS IN ZONE		79389.	321172.

APPENDIX C

REFERENCE MATERIAL

AGENDA MEMORANDUM

AGENDA DATE 9/16/80 ITEM NO. 5 UNIT Design and Construction

ZONE NC PROJECT NO. 2019 NAME Lower San Tomas Creek

SUBJECT: Lower San Tomas Creek Proposed Channel Improvements Between Bayshore and Cabrillo Avenue

EXPLANATION:

On August 12 the Board requested a report on the effectiveness of the Lower San Tomas Creek channel improvements if they were designed to contain only that flow remaining in the channel if the inadequate box culvert upstream was never enlarged to carry the ultimate 1% flow.

BACKGROUND

The Lower San Tomas Creek project, between Bayshore Freeway and Cabrillo Avenue, was approved by the Board on April 15, 1980 and is now under design.

The project as approved is expected to:

1. Prevent 1% flood damages westerly of San Tomas Creek and northerly of Cabrillo Avenue. These damages are estimated at $12 million.

2. Cost $2.1 million.

QUESTION

Because of upstream overbanking, there could be a 1,600 cfs reduction in the 1% flow rates for this project if the long box culvert on San Tomas was never enlarged to carry the ultimate 1% flow. Since there is not forseeable funding to enlarge the box culvert, is it desirable to build the larger downstream project at this time?

ANALYSIS

Using the lower figure for design would make it possible to reduce the proposed channel sections.

The smaller channel sections would permit cost savings in channel lining and excavation.

(CONTINUED)

RECOMMENDATION:

That there be no change in the project design from that previously approved.

Subject: Lower San Tomas Creek Proposed Channel Improvements Between Bayshore and Cabrillo Avenue

The modified project would:

1. Still provide the $12 million flood damage reduction benefit.

2. Cost $1.9 million.

CONCLUSION

There would only be a relatively small reduction in construction cost if the project were designed with flows reduced to existing 1% flow rates.

The proposed full scale project is an element in the ultimate solution to the problem and would not present an obstacle if conditions change. If the channel were not enlarged to the 1% level with the present opportunity, it would need to be part of any solution to the inadequate box culvert if one is proposed in the future.

The channel could be down-sized in such a way that future enlargement would cost only about 12% more than present cost savings based on today's estimated costs. Given a cessation of inflation of construction costs this might be appropriate. It seems more prudent however to not rely on such a cessation at this time.

The District has adopted lower standards on some projects where the current cost savings can be shown to be very substantial. That does not seem to be the case here.

Director Sanchez stated that timing is important when you have more than one property owner involved.

Mr. Richard Wiley, special counsel for SCVWD, commented that one of the most important points of Mr. Ferguson's presentation is that the selection of the location or alignment of the pipeline within the roadway alignment will result in the least private injury because it is in an area that is already designated for another public project therefore, it cannot be available for private use under the existing zoning and master plan situation.

APPEAR
R WILEY
SPEC SCVW
COUNSEL

Chairman Peralta asked if there were any property owners in the audience who would like to address the Board on this matter. There were none.

Mr. Wiley stated that the present law provides that when you make a security deposit that that fixes the date of value.

Mr. Ed Ferguson, Supervising Civil Engineer, explained the project in detail.

A lengthy discussion ensued.

Mr. Wiley stated the Board is acting on findings based on the factual information that was presented to them and that these findings are that public interest and necessity require the acquisition, construction, completion and maintenance by the District of this public improvement, that the use for which the real property is to be applied is for such public improvement, that the real property or interest therein is necessary for public use and the taking is necessary for the public project and that the proposed public improvement is planned and located in a manner which will be most compatible with the greatest public good and the least private injury.

It was moved by Director Dullea, seconded by Director Sanchez and unanimously carried by a roll call vote that RESOLUTION NOS. 80-75, 80-76, 80-77, 80-78 and 80-79, IN THE MATTER OF DETERMINING AND DECLARING PUBLIC NECESSITY FOR THE ACQUISITION OF REAL PROPERTY OR INTEREST THEREIN AND AUTHORIZING ACQUISITION OF THE SAME BY EMINENT DOMAIN, be adopted.

RES
80-75
80-76
80-77
80-78
80-79

5. Mr. Korbay reported back to the Board at their request on Lower San Tomas Creek's proposed channel improvements between Bayshore Freeway and Cabrillo Avenue, Project No. 2019. An explanation is contained in the attached agenda memorandum.

LOWER S
TOMAS CR
PROJ 2019

Following a brief discussion, it was moved by Director Ferraro, seconded by Director Lenihan and unanimously carried that there be no change in the project design from that previously approved.

NO CHANG
IN PROJ
DESIGN

13. Chairman Peralta opened the meeting for public comment on any subject not on the agenda.

PUB
COMMENT

Corrol Santa Clara

John L. Richardson

Manuel Gomez

Review of San Tomas Aquino Creek with City of Santa Clara and Financial Capability of the North Central Flood Control Zone

December 28, 1979

On December 20, 1979, a meeting was held between representatives from the City of Santa Clara and myself to review the flood control measures proposed for San Tomas Aquino Creek in the reach from Highway 101 to 680 feet upstream of the confluence with Saratoga Creek.

The representatives from the City of Santa Clara concurred with the proposed measures and asked the District to proceed implementation of the total project at the earliest possible time.

It was indicated that the cost of the total project would be about $2.1 million and in this F.Y. (1979-80) there is about $1.86 million available for construction on this project. It was pointed out that, in the event no additional money was available this fiscal year, the project could be implemented in two stages.

Mr. Cristofano (Director of Public Works for the City of Santa Clara) indicated that, based on past experiences, he would ask the District Board of Directors to authorize implementation of the total project under one contract. He pointed out that the City of Santa Clara has been very cooperative with the Water District and, if needed, he would ask the City Council to address the District and present this case. He also stated that the City of Santa Clara could use the extra soil available from the project (about 60,000 C.Y.) helping reduce the cost for hauling away the excavated material.

In the North Central Zone, presently there is $1.86 million dollars budgeted for San Tomas Aquino Creek between Williams Road and Highway 101. In addition, there is about $300,000 remaining on Saratoga Creek account which will not be used this F.Y. At the end of this F.Y., there will be about $400,000 net cash in the reserve fund for the North Central Zone. The 1980-81 Tax Revenue for the North Central General Fund is estimated to be $1.2 million, of which about $0.9 million will be budgeted for Administrative, Planning, Maintenance and Operation costs, leaving $0.3 million for construction costs in F.Y. 1980-81 in the North Central Zone.

Therefore, it is recommended that the proposed flood control measures on San Tomas Aquino Creek, from 680 feet upstream of the confluence with Saratoga Creek to 125 feet downstream of Highway 101, be implemented in one stage at a total cost of $2.1 million. To do so will require transferring the unused budget on Saratoga Creek ($300,000) to the San Tomas Aquino Creek account this fiscal year.

It is estimated by the Design Division that it would take about 8 months (under present structure) to prepare the plans and specifications for construction of this project.

Manuel J. Gomez

Associate Civil Engineer
Predesign Division

MG:nn

AGENDA MEMORANDUM

AGENDA DATE 7/17/79 ITEM NO. 4 UNIT Design and Construction

ZONE NC PROJECT NO. 2021 NAME Saratoga Creek

SUBJECT: Report on Saratoga Creek (San Tomas Aquino Creek to Lawrence Expressway) Flood Protection Study

EXPLANATION:

Even though it had been determined earlier this year that the Saratoga Creek project could not be funded in the foreseeable future by the North Central Zone portion of the District's allocation of the one percent property tax, District staff has been proceeding with finalization of the Engineer's Report. This was to finalize the Board's earlier decision to approve a gabion-lined rather than a concrete-lined project. That decision was made with the knowledge that, even though the gabion-lined project would cost more than concrete lining, the gabion-lined project was most desired by the community. Unfortunately, in recent months, the cost of gabions has escalated sharply so that the estimated cost of such a project is now $8.6 million compared to $6.2 million for concrete lining.

Under these conditions, it is recommended that staff notify the citizen's committee and the City of Santa Clara that the gabion-lined channel can no longer be considered and, in light of the lack of funding ability to actually install either project, completion of the report (which requires a public hearing) is suspended.

The study has revealed, however, that a lot of potential flood damage can be eliminated by enlarging the short reach of Saratoga Creek from Cabrillo Avenue to the confluence with San Tomas Aquino Creek, in conjunction with improving the reach of San Tomas Aquino Creek between the confluence with Saratoga Creek and Bayshore Freeway. The short reach of Saratoga Creek had been planned under either alternative to remain an unlined channel, but enlarged. Construction cost of this reach is about $500,000 which is available from North Central Zone funds and construction of this reach will be proposed in conjunction with the San Tomas Aquino project for which a planning report is under preparation. A map of the area showing potential flooding and flooding reduction is attached.

RECOMMENDATION: That District staff be authorized to notify the Saratoga Creek Citizen's Committee and the City of Santa Clara staff that completion of the Saratoga Creek Planning Study is suspended unless and until supplementary financing becomes available.

AGENDA MEMORANDUM

AGENDA DATE 10/23/79 ITEM NO. 8 UNIT Design & Construction

ZONE PROJECT NO. NAME Saratoga Creek

SUBJECT: Letter from Mayor Gissler of Santa Clara

EXPLANATION:

The City Council of Santa Clara requests that the District investigate the feasibility of using benefit assessment proceedings to finance construction of the Saratoga and San Tomas Creeks.

District staff has been meeting with local citizens and City staff and upon their request has prepared and discussed the attached table indicating various assessment possibilities.

Staff has also stated the following to the citizens and City staff:

1. An in-depth study of benefit assessment financing needs to be made because there are many potential strategies regarding what areas should be covered and what should be financed.

2. Staff intends to make recommendations to the District Board concerning a District-wide study that could properly address this issue.

3. A serious consequence of assessment levies by watershed zones is the potential election cost. Special voter lists would need to be prepared and it appears that an election in the Saratoga and San Tomas Creek watersheds alone would cost in the neighborhood of $250.000.

4. Information on parcel sizes and uses appears not to be available in useful form in the County Assessor files. An actual assessment levy would require a large first time data collection and computer programming effort.

Los Angeles County and Alameda County are currently conducting County-wide benefit assessment proceedings leading to elections in November 1979, and June 1980 respectively. Staff will report on these efforts on October 23, and will provide further background on the enabling legislation and recommendations for further action at a near future Board meeting.

RECOMMENDATION: That the Chairman be authorized to send the attached letter

AUTHORIZED

OCT 23 1979

M
10/3/79

Flood Control Assessment Per Lot Per Year Under AB 549

Desired Revenue for Construction / Area to be Assessed	$ 1 M (Index)	$ 8 M (Saratoga Creek plus Lower San Tomas) (4-yr. Durat.)	$ 20 M Entire Saratoga & San Tomas Aquino Creeks (5-yr. Duration)	Equivalent Number of Lots. 1/, 2/, 3/, 4/
1) All area subject to FIA requirements for Saratoga & San Tomas Aquino Creeks to Highway 101	$225	-	$900	4,445
2) All area flooded to zero depth for both creeks to Highway 101	$124	-	$496	8,090
3) Area under FIA west of Saratoga Creek and D/S confluence and west of San Tomas Aquino Creek	$355	$710	-	2,815
4) Area flooded to zero depth west of Saratoga and D/S confluence and west San Tomas Aquino Creek	$259	$518	-	3,850
5) Saratoga and San Tomas Aquino Creeks Watersheds to Highway 101	$ 17	-	$ 68	60,131
6) Saratoga Creek watershed to confluence with San Tomas Aquino Creek	$ 52	-	-	19,325

1/ Assumes proportion of developed residential, commercial & industrial area.
2/ Assumes a .1 coeff. for raw undeveloped area.
3/ Average single-family parcel has an area of .22 acre (9600 sq. ft.) which includes share of roadway. Net area is 7200 sq. ft.
4/ Correction factor also eliminates public lands from Assessment District (parks, public schools, cemeteries, etc.)

Coord Santa
X201
Coord S.C. City

October 23, 1979

Mayor William A. Gissler
The City of Santa Clara
City Hall
1500 Warburton Avenue
Santa Clara, California 95050

Dear Mayor Gissler:

Thank you for your letter of October 11, 1979, asking that the District investigate the feasibility of using assessment Districts as a method of financing work on Saratoga and San Tomas Creeks.

We too are disappointed that the conclusion of many years of careful planning of these projects by us and your community has been frustrated by our current financial restraints. Your City has always been understanding and supportive of our mission and we appreciate it.

There are many potential strategies that we must consider in investigating the use of benefit assessments. We expect to be considering recommendations from our staff in the near future as to how we should proceed, and we'd like to respond more completely to your letter after we have studied the matter. You will hear from us next month.

Sincerely yours,

[illegible] BY
Patrick T. Ferraro
Chairman, Board of Directors

bc: Board of Directors, SCVWD(agenda) 10/23/79
J. O'Halloran; R. Esau; S. Ekstrand

GK:mh

10/15 SAE
cc: JTO
cc: GSR
LCF

2021
Comm Santa Clara

THE CITY OF SANTA CLARA

CALIFORNIA

OFFICE OF THE
MAYOR

CITY HALL
1500 WARBURTON AVE
SANTA CLARA CA 95050
(408) 984-3250

October 11, 1979

Board of Directors of the
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Gentlemen:

In a letter dated July 20, 1979, Mr. George Korbay informed the City of Santa Clara that the District had to suspend completion of the Saratoga Creek Planning Study unless and until supplemental financing became available to the District.

It is our understanding that this letter was precipitated because of the reduction in annual revenues to the District due to Proposition 13.

The City Council and the Citizens Committee for Saratoga Creek were most dismayed over the letter because it has been a long-term goal of the City and its citizens to improve Saratoga Creek. Because of the importance of the project, the City Council directed its staff to meet again with Water District representatives and the Citizens Committee to see if there were other alternate sources of revenue that could become available, particularly state and/or federal funds.

After two such meetings, it is apparent to us that there are no significant state or federal grants that can be used for the improvement of Saratoga Creek. However, new legislation in the form of Assembly Bill 549 has been chaptered into state law. This legislation empowers Boards of Supervisors (or the Board of Directors for the District) to initiate assessment proceedings for flood control projects.

In reviewing the potential flooding problems within the Saratoga Creek watershed, it is apparent that the San Tomas Aquino Creek watershed also affects Saratoga Creek because of spillage of excess waters that cannot be handled by the San Tomas Aquino Creek only. Therefore, it appears that both problems should be more thoroughly investigated as a possible joint improvement project.

At its meeting of October 9, 1979, the City Council, in cooperation with the Citizens Committee for Saratoga Creek, requested the Board of Directors of the Santa Clara Valley Water District to investigate the feasibility of using assessment district procedures as a viable method to finance the required improvements.

We would be most appreciative of learning the Directors' feelings on this matter at the earliest practical time. Toward this end, our staff or members of the Citizens Committee for Saratoga Creek will assist the District in any way they can.

Very truly yours,

William A. Gissler

William A. Gissler
Mayor

WAG:mn
cc: Joe Clark
3037 Stevenson, S.C.

John O'Halloran, Gen. Manager
Santa Clara Valley Water Dist.

George Korbay
Design and Construction Manager
Santa Clara Valley Water Dist.

8/23 GSK
LCF

2021
Cont. Santa Clara

THE CITY OF SANTA CLARA

CALIFORNIA

DIRECTOR OF PUBLIC WORKS
CITY HALL
1500 WARBURTON AVE.
SANTA CLARA, CA. 95050
(408) 984-3200

August 21, 1979

Mr. George Korbay
Design and Construction Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Dear George:

As a result of your July 20, 1979 letter regarding the suspension of the Saratoga Creek Planning Study, we brought the matter before the City Council.

Although we all recognize the revenue limitations of the Water District, we, none the less, were very discouraged because of the years of work put in on the Saratoga Creek improvement project.

Therefore, the Council wishes to see the City staff, representatives of the Saratoga Creek Citizens Committee, and the Water District to meet once again to explore;

a) The availability of other revenue sources (Federal or State), and

b) A review of the present improvement concept to see if it can be revised to lessen the cost of construction.

I would further propose that the meeting be held in late afternoon (as the others were held) in the Conference Room adjacent to my office when you determine when the Committee can meet. Please call my office so that we can reserve the Conference Room.

Very truly yours,

Sam

S. M. Cristofano
Director of Public Works/City Engineer

SMC:mn
cc: Joe Clark
3037 Stevenson, S.C.

July 20, 1979

Mr. Sam Cristofano
Director of Public Works
City of Santa Clara
Post Office Box 388
Santa Clara, California 95052

Dear Sam:

We have had to suspend completion of the Saratoga Creek Planning Study unless and until supplemental financing becomes available (see attached Agenda Memorandum).

An interim report (attached) indicates that, under the present financial system, neither a gabion-lined channel nor a concrete-lined channel could be constructed by revenues generated by the North Central Flood Control Zone.

Our studies have revealed, however, that a lot of potential flood damage can be eliminated by enlarging the short reach of Saratoga Creek from Cabrillo Avenue to the confluence with San Tomas Aquino Creek in conjunction with improving the reach of San Tomas Aquino Creek between the confluence with Saratoga Creek and Bayshore Freeway. Planning reports for these two short reaches are under preparation and we will be proposing construction in the not too distant future.

The District will continue to maintain the Saratoga Creek and provide emergency erosion control measures as needed.

Thank you and the Citizens Committee for your assistance over the many months of this study.

Sincerely yours,

ORIGINAL SIGNED BY

George Korbay
Design and Construction Manager

Attachments

cc: M. Gomez
G. Korbay

GK:MG:mw

MINUTES
SANTA CLARA VALLEY WATER DISTRICT
BOARD OF DIRECTORS MEETING
July 17, 1979

(Paragraph numbers coincide with agenda item numbers)

A regular meeting of the Board of Directors of Santa Clara Valley Water District was held in the Board Room of the District Administration Building, 5750 Almaden Expressway, San Jose, California, at 9:00 a.m. on July 17, 1979. — REGULAR MEETING

1. Board members present were Directors M. E. Dullea, J. J. Lenihan, L. Peralta, A. T. Pfeiffer, C. M. Rush, R. T. Sapp and P. T. Ferraro, Chairman, presiding, constituting a quorum of the Board. — PRESENT BOARD

Staff members present were G. Dunlap, S. A. Ekstrand, R. R. Esau, A. T. Henley, J. T. O'Halloran and C. G. Wilson. — STAFF

2. It was moved by Director Dullea, seconded by Director Peralta and unanimously carried that the Minutes of June 26, 1979 be approved as written. — APPROVED MINUTES 6/26/79

3. The Board considered the matter of legal action to end the trespass of Thomas Jefferson Bowman, Jr. on District lands, Almaden Valley, Project No. 9230, which had been continued from July 10, 1979. — TRESPASS BY T. J. BOWMAN, JR

The Board discussed the matter. Director Sapp requested staff to redouble their efforts for actual confrontation with Mr. Bowman to make certain he is aware of District's intended legal action in the event of his refusal to end encroachment upon District property. — STAFF DIRECTION

It was moved by Director Dullea, seconded by Director Pfeiffer and unanimously carried that, following the above stipulation, General Counsel be authorized to take legal action to end the trespass of Thomas J. Bowman, Jr. upon District lands. — AUTH LEGAL ACTION

4. Mr. George Korbay reviewed the Saratoga Creek Project (San Tomas Aquino Creek to Lawrence Expressway), Project No. 2021, with regard to the flood protection study as explained in the attached agenda memorandum. — SARATOGA CRK PROJ NO 2021

Discussion followed on the fact that the Saratoga Creek project could not be funded in its entirety, but study had revealed that a lot of potential flood damage can be eliminated by enlarging the short reach of Saratoga Creek from Cabrillo Avenue to the confluence with San Tomas Aquino Creek, in conjunction with improving the reach of San Tomas Creek between the confluence with Saratoga Creek and Bayshore Freeway. The short reach of Saratoga Creek had not been involved in the controversy between gabion-lined or concrete-lined channels but had been planned to remain an unlined,

enlarged channel. Construction cost of this reach is about $500,000 which is available from North Central Zone funds. A map of the area showing one percent potential flooding and flooding reduction is attached.

The Board discussed with staff the potential depth of flooding in residential and industrial areas and the cost-benefit ratio of improvement thereto. DEPTH OF FLOODING

Mr. Manuel Gomez, Associate Civil Engineer, used a wall display map to describe in detail the entire flooding pattern of the San Tomas Aquino and Saratoga Creeks.

Following further discussion, it was moved by Director Peralta, seconded by Director Dullea and unanimously carried that District staff be authorized to notify the Saratoga Creek Citizen's Committee and the City of Santa Clara staff that completion of the Saratoga Creek Planning Study is suspended unless and until supplementary financing becomes available. AUTH SUSPENSION SARATOGA CRK PLAN STUDY

Director Dullea directed staff to check with the Santa Clara City Council to make sure the Council was aware of the previous course taken by the District and advised of the direction currently being taken. STAFF DIRECTION

5. Dr. Bernard Goldner, Environmental Specialist, reviewed the Negative Declaration on Proposed Resumption of Herbicide Spray Program to Control Weeds in the South Flood Control Zone. He noted that the program ran into heavy opposition from many quarters and District staff feels that the best course of action at this time is not to approve that particular Negative Declaration. The herbicide (Amitrole), originally intended for use, is currently being reviewed by EPA. NEGATIVE DECLAR HERBICIDE SPRAY PROGRAM

Chairman Ferraro stated he would prefer to change the name of the program to "Weed Control" rather than "Herbicide". WEED CONTROL

Following discussion, it was moved by Director Peralta, seconded by Director Lenihan and carried that the Board approve a staff study on alternatives to herbicide spraying to control weeds. Director Sapp voted "no". APRVD STDY ON ALTERNATIVES OTHER THAN HERBICIDES

6. Chairman Ferraro discussed the attached letter dated July 10, 1979, from Kurt Wassermann, Chief, Office of Water Recycling, State Water Resources Control Board, Sacramento, regarding construction grant funds for wastewater reclamation. LTR RE GRANT FUND WASTEWATER RECLAM

During Board discussion, Director Sapp suggested that President Carter be informed of District interest and communications regarding request for grant funding in the field of wastewater reclamation. PRESIDENT CARTER

Chairman Ferraro requested staff to prepare a draft letter of reply to the Office of Water Recycling and to prepare an informative letter to President Carter, with a copy to Congressman Mineta, enclosing an article from Western Water News and letters discussed at today's meeting. STAFF DIRECTION

MINUTES
SANTA CLARA VALLEY WATER DISTRICT
BOARD OF DIRECTORS MEETING
November 9, 1976

(Paragraph numbers coincide with agenda item numbers)

A regular meeting of the Board of Directors of the Santa Clara Valley Water District was held in the Board Room of the District Administration Building, 5750 Almaden Expressway, San Jose, California, on November 9, 1976, at 9:00 a.m. REGULAR MEETING

1. Board members present were J. Chiri, M. E. Dullea, P. T. Ferraro, Linda Peralta, C. M. Rush, R. T. Sapp, and J. J. Lenihan, Chairman, presiding, comprising a quorum of the Board. PRESENT BOARD

Staff members in attendance were V. V. Enander, R. R. Esau, L. C. Fowler, A. T. Henley, J. T. O'Halloran, E. Prettyman and C. G. Wilson. STAFF

2. It was moved by Director Rush, seconded by Director Dullea and carried that the minutes of the meeting of October 26, 1976 be approved as mailed. APPROVED MINUTES 10/26/76

3. Mr. George S. Korbay, Design and Construction Manager, reviewed the history of the Saratoga Creek Planning Study, Project No. 2021. He introduced Mr. Joseph Clark, Chairman of the Saratoga Creek Committee, and Ms. Monica Miller, representing the Santa Clara Unified School District. SARATOGA CREEK PLANNING STUDY PROJECT NO. 2021

Mr. Korbay reviewed the attached agenda memorandum with regard to the contract with Creegan and D'Angelo.

It was moved by Director Sapp, seconded by Director Dullea and carried that the Board authorize payment of the Creegan and D'Angelo contract up to $53,818.38.

Mr. Richard Pardini, Associate Civil Engineer, Predesign Division, showed slides of the creek as it now exists.

Mr. Clark commented on the Committee's activities during the four years it has been meeting and urged that improvements on the creek be commenced as soon as possible.

Ms. Miller commented on the School District's program relative to developing student interest in the environmental aspects of the creek.

AGENDA MEMORANDUM

AGENDA DATE 11/9/76 ITEM NO. 3 UNIT Design and Construction

ZONE NC PROJECT NO. 2021 NAME Saratoga Creek

SUBJECT: Saratoga Creek Planning Study

EXPLANATION:

The August 10, 1976 report to the Board stated that the all-gabion channel alternative would be discussed with the Saratoga Creek Committee by its Chairman, Mr. Joe Clark. Mr. Clark has done so and staff is informed that while the committee would prefer no disruption of the creek's natural environment, there is at least agreement that the gabion-treated channel is preferred to concrete lining.

The appropriate next step is for District staff to complete the draft planning report and draft EIR and schedule the appropriate public hearings.

At this time, it is desirable to conclude the contract with the Creegan and D'Angelo firm for studies on the creek. The consultant firm has incurred a cost of $7,636.75 in additional studies. It is recommended that this cost be shared equally by the consultant and the District because the consultant relied on earlier District staff indications that a floodwall concept would be most desirable and completed his report accordingly. The District staff's opinion relied on an assumption that floodwalls could be safely installed at the tops of bank. Review of the floodwall alternative resulted in the opinion that extensive bank revetment would be necessary in many areas to prevent erosion from undermining the proposed walls. It appeared that so much revetment would be necessary that the channel would end up essentially lined. This led staff to the conclusion that as long as the channel needs to be lined, it may as well be deepened somewhat and thus avoid the use of walls entirely. The consultant accepted this direction and proceeded with his remaining authorized funds to restudy the project. Because of the planning nature of the study, the consultant was unable to accurately forecast whether or not the additional study could be completed within budget until the restudy was actually undertaken. Upon conclusion of the restudy, the consultant found that they had generated charges of $13,262.53 over the $50,000 limit. Of this overrun, $7,636.75 is directly attributable to the restudy and is proposed to be shared equally by the District and the Consultant.

RECOMMENDATION: That the Board authorize payment of the Creegan and D'Angelo contract up to $53,818.38.

AGENDA MEMORANDUM

AGENDA DATE 8/10/76 ITEM NO. 7 UNIT Design and Construction

ZONE NC PROJECT NO. 2021 NAME Saratoga Creek

SUBJECT: Progress Report on Studies of Saratoga Creek in Santa Clara

EXPLANATION:

In 1974 the District contracted with Creegan and D'Angelo to prepare a hearing plan on Saratoga Creek between the San Tomas Confluence and Stevens Creek Boulevard in the City of Santa Clara. Creegan and D'Angelo have essentially completed their report, which recommends a partially excavated channel lined with rock and gabions which they believe met with the approval of most people in the area. However, it is the staff's opinion that this type of project would be difficult to maintain and would cost about $2,000,000 more than a concrete-lined channel.

A meeting was held with the Saratoga Creek Committee to discuss these facts. The general consensus was unfavorable to a concrete channel. Some wanted the creek left completely natural, and some wanted a project using rocks and gabions but minimizing the impact on the existing stream. The District has received approximately 56 letters from school children, whose school is near the creek, protesting consideration of a concrete channel. The children of course did not consider the negative aspects and dangers of flooding, only the preservation of the reparian habitat.

District staff has investigated a third alternative of a gabion-only-lined channel that could be adjusted to have somewhat less disturbance on the natural environment than the Creegan and D'Angelo proposal; it would not require the removal of any bridges; and it would be somewhat easier to maintain. The cost is slightly less than the Creegan and D'Angelo proposal, but still considerably more than the cost of a concrete channel.

One way of reducing the early cost of the gabion channel would be to do just that work necessary for flood control purposes and to correct only immediate erosion problems that actually threaten property. Also, only minimal work would be done through the Central Park area, such as low mounding, etc., to confine flood flows, but not correct all the erosion problems. This would have to be done in close cooperation with the City of Santa Clara. This approach would reduce the initial cost of the gabion project to about $3,900,000, which is close to the cost of the concrete channel. Attached is a cost summary of the three alternatives.

Continued

RECOMMENDATION:

Received & Filed

AUG 1 9 1976

Subject: Progress Report on Studies of Saratoga Creek in Santa Clara

Mr. Clark, Chairman of the Citizen's Committee, has requested the District to withhold any formal recommendation on these alternatives until he can discuss some compromise solutions with his committee. A meeting has been scheduled with Mr. Clark, representatives of adjacent school districts and City for August 25th to consider their suggestions.